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# American Fern Journal

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## The Fern Flora of Alabama

E. W. GRAVES

Alabama lies principally between latitude  $30^{\circ} 31'$  on the Gulf of Mexico, and  $35^{\circ}$  under the rim of the Tennessee highlands, presenting two well-marked divisions. The upper or northern half, lying in the rugged mountains of the southern Alleghanies, offers great complexity in its geological formation, almost every stratum of various epochs being represented here. This gives rise to greater diversity of topography and soil than exists in any other of the Gulf States, thus producing that variety of flora seen in few of her sister States.

The lower or southern division can be considered as a vast plain of great uniformity in its general features; gently undulating where the loose sedimentary strata of the Post-tertiary formation prevail, and broken where the cherty ridges of the Tertiary and Cretaceous rocks offer greater resistance to erosion by water.

The altitude of the State begins at sea level in the extreme south and rises gradually until more than 2000 ft. is reached in the northern part of the State.

The flora of Alabama is unsurpassed by any of the surrounding states, with the possible exception of North Carolina, having about 5000 species and varieties recorded to its credit. Forty different species of orchids have been found growing in the State, possibly a larger number than could be found in any neighboring state except Florida. Some of the rarer orchids of the eastern United States I have found plentiful in Ala-

bama. *Habenaria integra* which is so scarce in most other states, I found growing by hundreds in a large swamp near Whistler in Mobile County. The rare *Pogonia verticillata* is quite common on the table-lands of the northeastern part of the State. *Spiranthes Beckii*, which is a rare orchid in the south, I found near Spring Hill.

Seven of the Trilliums, six of the Sarracenias, or Pitcher-plants, ten Sabbatias, which bear such beautiful flowers throughout the summer, and thirty-two of the Solidagos or Goldenrods, with a large representation of the Eupatoriums, are found within the borders of the State.

Of the ferns found in North America, Alabama can boast of several of the rarer species; among them are *Trichomanes Petersii*, *Asplenium ebenoides*, *A. Bradleyi*, *A. pinnatifidum*, and *Dicranopteris flexuosa*. Of the first named fern Alabama holds four of the six known stations; of the last the State holds the only station in the United States.

Vermont with its sixty-eight ferns, including twelve Lycopodiums, has been termed, "The fern-lover's paradise." My list for Alabama shows seventy species of ferns including nine Lycopodiums, placing it fourth among the states of the union, Pennsylvania, Florida, and New Jersey only having larger lists.

In the preparation of this paper I have corresponded with Dr. E. A. Smith, state geologist, Dr. R. M. Harper, state botanist, Mr. W. R. Maxon and Mr. A. H. Howell of Washington, D. C., and have been aided by association with Mr. W. C. Dukes, Mr. H. P. Löding and Dr. Van Aller of Mobile. With the last named I have made many a trip afield. To these gentlemen I express a word of thanks. I have also consulted Mohr's *Plant Life of Alabama*, the *Fern Bulletin* and the FERN JOURNAL.

I have spent ten years in the State, collecting in the following Counties: Jackson, DeKalb, Marshall, Madison, Morgan, Etowah, Blount, Jefferson, Walker, Winston, Culman, Colbert, and Lauderdale, in the mountain district of the north part of the State; Baldwin, Clark, and Mobile, of the southwest; and Perry and Hale counties of the central district of the State. In some of these counties I have collected sparingly while in others I have done some extensive collecting. Jackson and DeKalb counties within whose borders are some of the highest and roughest mountains of the State, and which extend farthest north, and Mobile county, where is found the lowest swampy ground and which extends farthest south, is where I have done most of my collecting.

#### OPHIOGLOSSACEAE

*OPHIOGLOSSUM CROTALOPHOROIDES* Walt. Found from mountain region to coast plain. Auburn, Lee Co. (Underwood & Earle); in Mobile Co., I found quite a colony in a dry pasture four miles west of Spring Hill. Mr. W. C. Dukes found it plentifully at Spring Hill.

*OPHIOGLOSSUM PUSILLUM* Nutt. Mohr reports it from Mobile Co., saying it is very rare. Mr. W. C. Dukes told me he found one specimen near the Alabama river at Magazine Pt., above Mobile.

*BOTRYCHUM OBLIQUUM* Muhl. I have found it common throughout the state. I have specimens from Jackson, DeKalb, Hale, and Mobile counties.

*BOTRYCHUM BITERNATUM* (Lam.) Underw. Found sparingly at Spring Hill, the only place recorded in the state. I found several colonies in the shade of Pine trees there.

*BOTRYCHUM ALABAMENSE* Maxon. This fern I found quite common around Spring Hill and several

miles to the west and to the north of the hill. It grew in shady places often under second growth timber.

*BOTRYCHUM VIRGINIANUM* (L.) Sw. Throughout the State, principally in the mountain district.

### POLYPODIACEAE

*POLYPODIUM POLYPODIOIDES* (L.) Watt. Common on rocks and trees throughout the state. The Live Oaks in Mobile county seem to be its preference as in some instances the body and limbs are simply covered with the fern. Occasionally I have seen it growing on the ground in damp shady places. I found what might be considered by some a new variety. The two lower pinnae were eared below.

*POLYPODIUM VULGARE* L. I have found it very common throughout the mountain region of the north, but I believe it has never been reported from the southern part of the State.

*ADIANTUM CAPILLUS-VENERIS* L. Common in the southern half of the state, but rare and local in the north. However, I found plants growing out of crevices in limestone along the Tennessee river. In the south I found it growing on a brick wall in the city of Mobile. Dr. Van Aller told me the limestone cliffs up the Alabama River were lined with it.

*ADIANTUM PEDATUM* L. Common in the mountain region of the north part of the State extending as far south as Hale county where I found it growing. Dr. E. A. Smith reports it from Tuscaloosa county the next county north of Hale county.

*PTERIS AQUILINA* L. Abundant everywhere throughout the State, growing in sun and shade alike.

*PTERIS AQUILINA PSEUDOCAUDATA* Clute. Central prairie belt to coast plain. Sandy shaded banks and thickets, Mobile Co., frequent.

*PTERIS SERRULATA* L. Very common in Mobile Co. First observed in 1870, since spreading along the banks of water courses and ditches, and on old walls. In the city of Mobile one finds it growing on most all brick walls, sometimes ten or fifteen feet above the ground. Dr. Smith sent me a specimen from Tuscaloosa where he found it growing.

*PTERIS LONGIFOLIA* L. This fern to my knowledge, had never been collected in the State, until I found about a dozen plants growing on a brick wall on West Congress St., in Mobile. The building was old facing the east, and shaded by a large tree. On the wall with *P. longifolia* grew *Dryopteris normalis*, *Pteris serrulata*, and several weeds. The plants were not large; some had fronds perhaps fifteen inches long. Most of them were much smaller.

*CHEILANTHES ALABAMENSIS* (Buckl.) Kunze. Grows on limestone in north part of the State. Dr. E. L. Lee, of Bridgeport, Ala., told me that it grew plentifully on the west side of Sand Mt. near the Tennessee river, but I never saw it in the county. I found it growing rank, almost a foot tall, near Florence, in Colbert Co. Mohr reports it from Winston Co., Etowah Co. and Bibb Co.

*CHEILANTHES LANOSA* (Michx.) Watt. Mountain region of the northern half of the state, on sandstone. I have found it in Jackson Co., Jefferson Co., Colbert Co., DeKalb Co. and Hale Co. Mohr reports it from Cullman, Lauderdale, and Tuscaloosa counties. Smith reports it from Bibb Co.

*CHEILANTHES TOMENTOSA* Link. Rather common in the mountain region of the north. On Sand Mt. it grows at an altitude of 1200 ft. I have never found it lower than 600 ft. Mohr reports it from Cullman Co. 800 ft., Blount Co., 600 ft., Talladega Co., Alpine Mt. Signal Station, 1800 ft. and Lauderdale Co., 500 ft.

I found large specimens twelve inches long at Black Creek Falls in Etowah Co., at about 1000 ft. altitude.

*PELLAEA ATROPURPUREA* (L.) Link. Mountain region of the northern part of the State. Mohr says it is nowhere abundant but I found it quite plentiful on Sand Mt. growing on limestone, and on the plateau I found quite a number of plants growing on sandstone cliffs. I found it also in Etowah Co., at Black Creek Falls and in Marshall Co., and northwest of Birmingham in Jefferson Co. It is reported from Lawrence Co. by T. M. Peters, Madison Co., Lauderdale Co., and Clay Co., by Mohr and from Tuscaloosa Co. by Smith.

*WOODWARDIA AREOLATA* (L.) Moore. Distributed over the State in shaded sandy swamps. This is one of the most abundant ferns of the State. I found it common on Sand Mt. in Jackson and DeKalb Counties, and very abundant in Mobile and Baldwin Counties. I also found it in Hale Co.

*WOODWARDIA VIRGINICA* (L.) Sw. Frequent along the coast and on Sand Mt. plateau in the north, but rare in the interior. I have found it in Jackson, DeKalb, Mobile and Baldwin Counties. Dr. Smith reports it from Russell Co.

*ASPLENIUM PINNATIFIDUM* Nutt. Mohr reports this fern from the mountain region and the Tennessee valley, but I have never found it in the valley region. I have found it quite plentiful in the mountains. On the brow of Sand Mt. and the Cumberland Mts. in Jackson and DeKalb Counties it grows in protected crevices. On the plateau wherever a sandstone cliff protrudes out of the soil with an eastern exposure one is almost sure to find a few plants, though usually small. In the year 1917, I found some beautiful large specimens on the high cliffs overlooking Long Island. These plants were very peculiar, being twice pinnatifid. Some of the plants produced fronds two and a half inches wide, and

eight inches long. The incisions were cut almost to the midrib, and the lobes were again deeply incised. I have found hundreds of plants but never have I found plants like these. I have found *A. pinnatifidum* in Jackson Co. near Bridgeport and Long Island, in DeKalb Co. near Fort Payne, in Marshall Co. west of Guntersville, and in Etowah Co. Mohr reports it from Cullman Co., Winston Co., Marion Co. and Lauderdale Co.

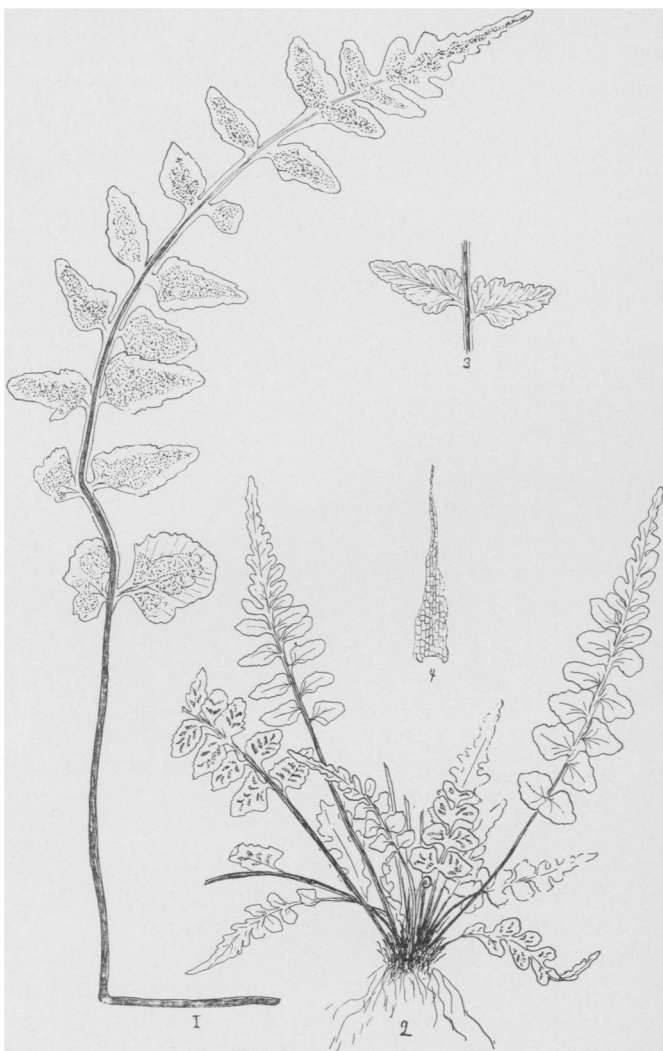
**ASPLENIUM BRADLEYI** Eaton. This fern is found only in the mountain region, and grows on the same kind of rock that *A. pinnatifidum* grows on, that is, sandstone, not limestone. I have found hundreds of plants and have never found it on limestone. Often I have found both these ferns in the same crevice growing near each other. *A. Bradleyi* has been recorded from only three Counties in Alabama, Jackson, DeKalb and Clay Counties. Only one small specimen was found in Clay Co. I have found it very plentiful in Jackson Co. Most of the plants were rather small, but in 1917, I found a good many nice plants, some with fronds ten inches long.

**ASPLENIUM GRAVESII** Maxon. Most of the plants of this fern that I found were found just across the line near Trenton, Ga. Only one plant was found in Alabama, near Bridgeport, on Cumberland Mt. This hybrid always grew in the same vicinity with *A. pinnatifidum* and *A. Bradleyi*. Dr. Maxon gave a good description of it in Vol. 8, No. 1 of the American Fern Journal.

**ASPLENIUM PLATYNEURON** (L.) Oakes. This fern is found over the whole State on all kinds of soils. Common most everywhere.

**ASPLENIUM PLATYNEURON SERRATUM** (E. S. Miller) BSP. This variety is found usually with the type. I have found it in Jackson, DeKalb, and Mobile Counties.





ASPENIUM GRAVESII MAXON  
(A. Bradleyi  $\times$  pinnatifidum)

*ASPLENIUM PLATYNEURON INCISUM* (E. C. Howe) Robinson. This variety I have found only in Mobile Co., near Spring Hill, in a deep damp ravine. This is a very beautiful fern with its pinnae deeply cut, often nearly to the midrib. The fronds were fourteen to twenty inches high.

*ASPLENIUM EBENOIDES* R. R. Scott. This hybrid has been found only in two counties of the State, Hale Co. and Marion Co. In 1918, I visited the station at Havanna in Hale Co. I found the fern still holding its own, but the plants were mostly small. I had quite a hard time finding the ravine and it was nearly dark when I came to the plants. I counted about fifty in all. It grew on almost the same kind of stone that I have found most of *A. pinnatifidum* growing on, apparently a sort of sandstone. It certainly was not limestone.

*ASPLENIUM PARVULUM* Mart. & Gal. Tennessee valley to lower hills. Growing on limestone on shady hillsides. I have found it only in Jackson and DeKalb Counties, being quite plentiful there. Mohr reports it from Lawrence, Lauderdale, Walker, Madison, Bibb, and Clay Counties.

*ASPLENIUM TRICHOMANES* L. Damp sheltered rocks and open caves, called in Alabama "rock houses." Not plentiful anywhere. Jackson, DeKalb, Etowah, Talladega, Tuscaloosa, and Clay County.

*ASPLENIUM MONTANUM* Willd. Mountain region, rare in most places. There are one or two places on Sand Mt. where it is rather common. It grows out of the crevices of sandstone, often in large clumps. I

EXPLANATION OF PLATE 1.—1. Frond from the type specimen, collected near Trenton, Ga., Nov., 1917, *E. W. Graves* no. 231,  $\times \frac{3}{4}$ . The heavily fruited, mature sori are confluent. 2. A plant of the same collection, no. 231x,  $\times 1$ . 3. Two pinnae from a frond of the original collection, near Trenton, Ga., March, 1917, *E. W. Graves* no. 230x,  $\times 1$ . 4. Scale from the rootstock of no. 231x,  $\times 5$ .

have found a number of fronds with the upper part divided, one had two divisions down the top more than an inch deep.

In one place I found a small colony of plants which seemed to be a separate variety. It was much more finely cut, there being as much difference between it and the type as there is between *Dryopteris spinulosa* and the fine cut variety *D. spinulosa* var. *Concordiana*. This colony of about a dozen plants was isolated from the other coarser plants, showing it was reproducing itself, or else it was the rocks on which it grew that caused the plants to produce fronds of a finer cutting. There are many variations among Alabama ferns which some would class as new ferns. Very unfortunate for this little fern, having grown in Alabama where few fern students live, for had it grown in the New England states where most of those versed in nomenclature live, it would no doubt be bearing a name all its own!

**ASPLENIUM RUTA-MURARIA** L. Tennessee valley mountains and lower hills. Growing on exposed rocks. I found a large colony growing on limestone near the Tennessee river at Sheffield, Colbert Co. Though I never found it in Jackson Co., Dr. E. L. Lee of Bridgeport told me it grew across the river from Bridgeport at the foot of Sand Mt. I have specimens which he collected there. Mohr reports it from Winston, DeKalb, and Etowah Co., and I believe also from Bibb Co.

**ASPLENIUM ACROSTICHOIDES** Sw. This fern I have never found growing in the State, but Mohr reports that Dr. Underwood found it in Winston Co.

**ASPLENIUM ANGUSTIFOLIUM** Michx. Mountain region, quite rare. I have only found it in Bucks Pocket of Sauty Creek, Marshall Co. Mohr reports it from Winston Co.

**ASPLENIUM FILIX-FOEMINA** (L.) Bernh. This is a very common fern throughout the State, being found everywhere. Mohr says it is most frequent in the mountains, but I found it equally as common in Mobile County, along sandy ravines. The red and white stiped varieties are both common.

**CAMPTOSORUS RHIZOPHYLLUS** (L.) Link. Mountain region to Central Pine belt. I have found it sparingly in Jackson Co., and in Marshall Co., near the place where I found *Trichomanes Petersii*. I found it covering the rocks in matted formation at the latter place. As I have said before, it being nearly dark when I found the *Asplenium ebenoides* station, I did not see *Camptosorus* there at all. Dr. E. A. Smith wrote me that he had found it there, and Dr. Underwood has stated that he found it there. Mohr reports it also from Cullman Co.

**PHEGopteris hexagonoptera** (Michx.) Fée. Mohr gives it from mountain region to lower hills, but I have found it as far south as Mobile Co., at Salco, and Magazine Pt., growing in great patches in the beech woods. The latter place is only seven miles north of the city of Mobile. Mr. Dukes told me he had found it also three miles south of Mobile. I have found it plentiful in Jackson, Marshall, and DeKalb Counties. Mohr reports it from Cullman, Lauderdale and Tuscaloosa Counties. I believe this Mobile station is the farthest south that has been recorded.

**POLYSTICHUM ACROSTICHOIDES** (Michx.) Schott. Over the State in rich woodlands and ravines. Jackson, DeKalb, Marshall, Etowah, Winston, Walker, Perry, Mobile, and Baldwin Counties.

**POLYSTICHUM ACROSTICHOIDES INCISUM** A. Gray. Occasionally met with in Jackson Co., with the type.

**POLYSTICHUM ACROSTICHOIDES CRISPUM** Clute. Only one or two plants found in Jackson Co., on Sand Mt.

*DRYOPTERIS THELYPTERIS* (L.) Gray. Mobile and Montgomery Co. I found it quite abundant in the first named Co., growing in swampy places. Near Whistler, Alabama, I found fronds as high as my head, and I am almost six feet tall. It was growing in a swamp among bushes.

*DRYOPTERIS NOVEBORACENSIS* (L.) Gray. Found in the mountain region to lower hills. A very common fern on Sand Mt. in Jackson and DeKalb Counties, growing on the borders of swamps. Mohr reports it from Lauderdale, Blount, Tuscaloosa, and Fayette Counties.

*DRYOPTERIS FLORIDANA* (Hook.) Kuntze. We have only one record for this fern from the State. Dr. L. M. Underwood found it near Auburn, in Lee Co.

*DRYOPTERIS MARGINALIS* (L.) Gray. Common in the ravines of Sand Mt. in Jackson, DeKalb and Marshall Counties. Mohr says it is infrequent in Cullman, Tuscaloosa, and Clay Counties.

*DRYOPTERIS MARGINALIS ELEGANS* (J. Robinson) Carhart. I found a number of plants of this fern growing with the type in a shaded ravine on Sand Mt. in Jackson Co.

*DRYOPTERIS SPINULOSA DILATATA* Underw. Reported from Winston Co., the only station for the State, by Mohr.

*DRYOPTERIS SPINULOSA INTERMEDIA* (Muhl.) Underw. I found two good colonies in deep ravines, and a friend told me of another colony, on Sand Mt., Jackson Co. This fern has not been reported from any other part of the State.

*DRYOPTERIS NORMALIS* C. Chr. Coastal plain and lower hills. This is a very abundant fern in Mobile Co., growing on the border of swamps, and in shady ravines. I have also found it in Baldwin and Hale Counties. Dr. Smith reports it from Tuscaloosa Co.

*DRYOPTERIS MOLLIS* (Jacq.) Hieron. This fern was reported to me by Mr. Dukes, as growing near a creek which runs down Fern Way in West Mobile, between Spring Hill Road, and Dauphin St. When I examined the place I found the creek had been cleaned up and concreted, so that destroyed the station. I had hunted diligently hoping to find it elsewhere, but it was not until I was about ready to leave Alabama in October, 1919, that my search was rewarded. Just north of the Electric Car Barn on Spring Hill Road by the roadside in a ravine I found a large colony of that fern. It very closely resembles *D. normalis*, but one can see the difference by examining the veining of the pinnae.

*CYSTOPTERIS BULBIFERA* (L.) Bernh. Mountain region on wet limestone rocks. Jackson, Colbert, Lauderdale, and Etowah Counties. Not plentiful.

*CYSTOPTERIS FRAGILIS* (L.) Bernh. Mountain region to lower hills. In rich woods and rocky places. Frequently met with in rich ravines.

*ONOCLEA SENSIBILIS* L. Throughout the State in damp places. Mohr says it is found from lower hills to Coast plain, but I have found several good colonies on Sand Mt. in Jackson Co. Mohr reports it from Baldwin Co. Mr. Dukes told me of finding it at the foot of Spring Hill in a swamp, but I could never find the station.

*WOODSIA OBTUSA* (Spreng.) Torr. Found throughout the northern part of the State on rocks, both limestone and sandstone. I have found it in Jackson, DeKalb and Hale Counties. In Hale Co. I found it as far south as Greensborough, the County Seat. It was reported that Prof. R. S. Cocks found it at Selma, in Dallas Co. Selma is perhaps twenty miles south of Greensborough, making it the station farthest south for the State. Mohr gives it from Winston Co. Dr. Smith reports it from Bibb and Tuscaloosa Counties.

*DENNSTAEDTIA PUNCTILOBULA* (Michx.) Moore. Mountain region. Rocky hillsides and open woodlands. I have found it in Jackson, DeKalb, and Marshall Counties. T. M. Peters reports it from Winston Co. and Dr. Smith from Bibb Co.

*TRICHOMANES BOSCHIANUM* Sturm. Mountain region to lower hills, on damp rocks. I found two stations for this delicate fern on Sand Mt. in Jackson Co. One was at the foot of a large water-fall where water was continually splashed over it and seldom froze. The other was under a ledge of rocks that were partially dry a part of the year. This station contained many fruiting fronds, but they were rather small. The former station contained larger plants, but had few fruiting fronds. In Walker Co. on a rocky wall which was damp but had the sunlight most of the day I found large colonies of small plants, but few were fruiting. Across Sipsey river in Winston Co. under ledges of rocks where the sun never shone I found the best specimens. Some of these were ten inches long, and heavy with fruit. Those of Jackson Co. never received any sunlight. It has been found in Franklin, Marion, Etowah, Hale, and Lawrence Counties. It is always found on sandstone.

*TRICHOMANES PETERSII* Gray. Found in four places inside the State, and only two places outside of the State. I have specimens from all six stations. It grows on damp sandstone which receives more or less water at different times throughout the year. The station I found in Marshall Co. was where the sun could reach it a part of the day. There were thousands of plants matted together. It was first observed in Winston Co. by T. M. Peters. It has since been found in Marion and Etowah Counties.

*CYRTOMIUM FALCATUM* (L. f.) Presl. This fern has been reported by Mr. W. C. Dukes as an escape in

Montgomery Co., and was thriving in a good-sized colony. I found one plant growing in west Mobile, on Spring Hill Road, near Ashland Place. It was growing in the side of a lawn under the shade of wild bushes, near a stone wall. I called at the residence asking if it had been purposely placed there, but the ladies told me they had been living there eight years and it was there when they came. They did not even know it was a fern. It was a large clump composed of several plants. Chickens had been scratching it and using it very hard, else other plants might have been produced by spores.

*DICRANOPTERIS FLEXUOSA* (Schrad.) Undw. One large plant of this fern was found by L. H. McNeill a few years ago in the lower part of Mobile Co. growing in a railroad cut. It flourished for several years, and when Mr. A. H. Howell of the Biological Survey visited the place in 1917, he found it growing nicely, and took a photograph of it. At that time Mr. Howell sent me a part of a frond. The next year when I went to Mobile, I went in company with Dr. Van Aller to the site, but we found that a steam shovel had removed the soil from the place and had evidently carried it away with the soil to fill around a bridge. We searched everywhere but could not find even a frond of the plant. The plant, though very large, had never produced any fruiting fronds. I fear it has disappeared from the State. I have searched since, but no trace was found of it.

*LYGODIUM JAPONICUM* (Thunb.) Sw. This climbing fern is apparently an escape in Mobile Co. Mr. Dukes found it growing along the creek near Fern Way in West Mobile. In putting in the concrete drain it must have been destroyed, as I could find no trace of it on my visit to the place. It grows in many of the lawns in the city.



*OSMUNDA CINNAMOMEA* L. Low damp woods throughout the State. The most abundant fern we have. In Mobile County there is a fall fruiting variety. It begins fruiting in September and produces fruiting fronds up to November. I believe the reason for the fall fruiting of this fern is the excessive rain in August, near the coast, which cause the plants to take a new start. New sterile fronds are produced also. I have never observed this fern fruiting in the fall in the northern part of the State, which does not receive excessive rains in August.

*OSMUNDA CINNAMOMEA FRONDOSA* Gray. I found one plant in the northern part of Mobile Co. near Salco. This fern I found in April. In September I found a very peculiar variety. The sterile fronds were very narrow, the pinnae extending about one inch on each side of the rachis. The lobes of the pinnae were not entire but triangular in shape and serrate. One frond was composed of all fertile pinnae. Another frond was fertile in the middle, and sterile above and below. The lobes of the pinnae were serrate as in the other sterile fronds. I suppose if this fern had grown in New England it too would have carried a new name.

*OSMUNDA REGALIS* L. Common throughout the State on the border of swamps. This fern too has the habit of fruiting in the fall, in the southern part of the State, but I have never found it fruiting in the fall in the northern part.

### LYCOPODIACEAE.

*LYCOPodium ALOPECUROIDES* L. This Club Moss is frequently met with in the swamps throughout Mobile and Baldwin Counties. Mohr adds Washington Co. also. I have sometimes seen it in great masses on the border of a swamp.

*LYCOPodium adpressum* (Chapm.) Lloyd & Underw. This Club Moss I have never found, but Mohr reports it from Mobile and Baldwin Counties, growing in open pine barrens, and swamps.

*LYCOPodium pinnatum* (Chapm.) Lloyd & Underw. Wet springy places near Spring Hill and Whistler, in Mobile Co. Quite rare. Mohr also gives it from Lee Co.

*LYCOPodium carolinianum* L. Swampy ground along the coast. I have found great colonies growing among the grass in a natural meadow, also on springy banks sparingly near Spring Hill, and Whistler, in Mobile Co. I found a few scattering plants on springy banks east of Mobile Bay in Baldwin Co.

*LYCOPodium porophilum* Lloyd & Underw. I have never seen this plant, but Mohr reports that Underwood found it in Winston Co., near Sipsey river, June 1, 1896.

*LYCOPodium cernuum* L. Found on springy banks in Mobile and Baldwin Counties. Along the railroad track north of Spring Hill I found large patches of it on clayey soil. It is a beautiful plant because of its fine texture.

*LYCOPodium prostratum* Harper. This Club Moss is quite plentiful in the southern part of the State. It grows in swampy places. I have found it in Mobile, Baldwin, and Hale Counties.

*LYCOPodium dendroideum* Michx. To my knowledge this plant has never before been reported from the State. I found it in large colonies in pine woods, on Sand Mt. in Jackson, and DeKalb Counties. It is gathered by the mountaineers at Christmas time and sold in Chattanooga, Tennessee, for decorating purposes.

*LYCOPodium complanatum flabelliforme* Fernald. This plant also has never been reported from the State before. I found two large colonies while hunting on

Sand Mt. in Jackson, Co., in company with Mr. A. H. Howell. It grew in low sandy woods near Miller Creek.

I have sent duplicates of almost all the ferns I have collected in Alabama, to the Herbarium of the American Fern Society. Any member wishing to examine them will find them there.

BENTONSPORT, IOWA.

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## The Story of a Fern Garden—II.

EDWARD HALE CLARKSON

The three species, well named by Clute "the marsh fern tribe," all grow well. I placed the simulata close to and on the west side of my high board fence where it gets plenty of overhead light, but very little sunshine, and it thrives, puts out fine fertile fronds, and is increasing. The Marsh fern, like *Onoclea sensibilis*, has to be violently restrained to keep it within bounds. The New York fern is one of the most satisfactory in the garden, and shows best in rather small clumps.

The Polypody is another fern that is both easy to manage in the garden and easy to transplant. Sheets of this fern may be lifted from boulders in the woods and brought to the garden in perfect condition. Placed on rock work, in a not too shady spot, the fern grows as well as before being moved.

In the case of the Brake (*Pteris aquilina*) I planted a small root four years ago—fortunately more than one hundred feet away from my fern garden—and close to the fence. It has thrived amazingly and threatens to cover both my yard and the garden next door. I would not be at all surprised if my neighbor should sue me for damages if he by any chance reads this incriminating article.